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### **Positron plasma techniques and the production of a positronium gas**

DAVID CASSIDY, University of California

The use of buffer gas positron traps has led to numerous advances in the field of positron physics, including improved beams for measurements of positron scattering from atoms and molecules, the production of antihydrogen and the generation of high-density positron pulses. The latter has been used to study dense positronium (Ps), in particular Ps-Ps scattering and the formation of molecular positronium, Ps<sub>2</sub>. The ability to create non-neutral positron plasmas has played a key role in such experiments; using the rotating wall technique in the strong drive regime [Danielson and Surko, PRL **94**, 035001] allows for precise control of the positron density as well as very long confinement times. Here I shall outline the methods we have used to produce intense bursts of dense Ps and consider what we can do using these techniques in the future.